Saskatchewan
Agriculture
and Food

Environmental Review

Guidelines for Intensive Livestock Operations

A close working relationship between Saskatchewan Agriculture, Food and Rural Revitalization (SAFRR) and Saskatchewan Environment in administering the Intensive Livestock Provisions of the *Agricultural Operations Act (AOA)* and the *Environmental Assessment Act (EAA)* has become fundamental to the development of intensive livestock operations in Saskatchewan. SAFRR has included the Environmental Assessment Branch of Saskatchewan Environment in the intensive livestock operation (ILO) referral process since 1989.

Applications for approval of large livestock operations, or where environmental sensitivities may exist, are provided to Saskatchewan Environment by SAFRR for review. Referred applications are treated as project proposals to provide information that assists Saskatchewan Environment in determining if any one of the six EAA development triggers applies to the specific project.

Environmental Assessment Act Guidelines for Environmental Review

These guidelines were developed by SAFRR and Saskatchewan Environment to streamline the application process for intensive livestock operations. The same information that applicants provide to SAFRR in support of applications under the Intensive Livestock Provisions can also used as a project proposal for evaluation under the EAA.

The guidelines set out the information both SAFRR and Saskatchewan Environment need to process and approve applications. The guidelines do not address construction standards, location criteria, site analysis, or public consultation. Many of these considerations are addressed in other publications.

The Intensive Livestock Approval Process

Intensive Livestock Operations (ILOs) require approval of waste storage and management plans from SAFRR under the Intensive Livestock Provisions of *The Agricultural Operations Act (AOA).*

The review and approval of waste management plans is led by SAFRR. The information provided to SAFRR for approval of waste storage and waste management plans is circulated to review agencies based on pre-determined triggers for review and comment.

The agencies are allowed 40 days to complete their review and to return their comments. SAFRR will usually provide a decision within 10 days of the referral due date (i.e. within 50 days of the referral being circulated for review). Agencies such as Saskatchewan Environment, Saskatchewan Watershed Authority (SWA), Saskatchewan Health, Saskatchewan Government Relations and Aboriginal Affairs and local municipalities are included in the review process.

Information collected under the *AOA* allows the referral agencies to:
a) identify any regulatory requirements their agency might have; and
b) identify any local environmental concerns which have not been addressed in the application.

Each of these agencies may have specific requirements of ILOs above and beyond the requirements of the Intensive Livestock Provisions. See the Appendix for a complete list of permits, approvals and licences that an ILO may require.

The Environmental Assessment Act

In Saskatchewan, any project may be subject to *The Environmental Assessment Act* (*EAA*), administered by the Environmental Assessment Branch, Saskatchewan Environment, regardless of regulation by another agency or authority. The EAA serves as a valuable safety net to ensure that individual projects are environmentally sound, not only as they relate to specific regulations such as the Intensive Livestock Provisions, but also as they relate to the broader environment.

What is a project proposal?

A project proposal is used by Saskatchewan Environment to determine whether a project is considered a development under the EAA. Projects, that qualify as developments under the Act, must prepare an Environmental Impact Statement (EIS) and obtain approval from the Minister of Saskatchewan Environment before proceeding.

Saskatchewan Environment's project evaluation involves circulating the project proposal to other government agencies for review and comment. This process is similar to SAFRR's referral process for ILO applications. Projects which are not developments may proceed, but must comply with other relevant regulations or bylaws.

Of all project proposals that Saskatchewan Environment circulates for review, approximately 10 per cent trigger the requirement for an EIS.

What Is a Development?

The EAA sets out six criteria defining a development. Development means any project, operation or activity or any alteration or expansion of any project, operations or activity which is likely to:

- have an affect on any unique, rare or endangered feature of the environment;
- substantially utilize any provincial resource and in doing so pre-empt the use, or potential use, of that resource for any other purpose;
- cause the emission of any pollutants or create by-products residual or waste products which require handling and disposal in a manner not regulated by any other Act or regulation;
- cause widespread public concern because of potential environmental changes;
- involve a new technology that is concerned with resource utilization and that may induce significant environmental change; or
- have a significant impact on the environment or necessitate a further development which is likely to have a significant impact on the environment.

Saskatchewan Environment is obliged to evaluate proposed projects according to these six criteria.

Project Information

103-03584/

General information about the project is included in the application for approval under *The Intensive Livestock Provisions*. A general description of the project, its location, ownership and operational structure, helps reviewers understand what is being proposed, where and by whom.

Project Background

- Explain the project ownership, especially with respect to who will be responsible for operation of the facility.

- Describe the type of ILO proposed including:
  - # of Animal Units (size)
  - Whether the proposal is for new construction or expansion to existing facilities;
  - Any previous permits which may exist;
  - General description of production capacity, the livestock production plan and manure management processes, with a schedule of relevant activities on a seasonal or annual basis.

- Describe phases of the project, anticipated expansions and expected life span of the operation.

Location

- Provide the legal land description, preferably to the legal subdivision level and the RM #

- Locate the facility on both regional and local maps with easily recognizable reference features. Use photomosaics or maps which will show highways/railroads, communities, public lands, Indian Reserves, streams and water bodies;

- Provide maps (topographic maps are ideal), indicating occupied rural residences, and natural features (drainage patterns, topography, vegetation) in relation to the project's location.

- Provide a map of the areas to be used for manure application, preferably on one the maps above.

An Effect on Rare, Endangered or Unique Features of the Environment

It is important that projects do not affect critical wildlife habitat, designated natural areas or rare and endangered species. Contact the Conservation Data Centre, Saskatchewan Environment, Regina, (306) 787-7196.

The following information collected through *The Agricultural Operations Act* (AOA) supports an evaluation of the project site and manure spreading areas to determine their potential impact on the natural environment.

Site Conditions

A good site has many positive social and economic benefits and should be evaluated from both a developer's and community perspective. Site selection involves practical, technical and environmental factors.

Evaluate present and future land-use in the surrounding area, such as proximity to neighbours and residential development.

SAFRR's publication Establishing and Managing Livestock Operations discusses these and many other siting considerations.

The following information will assist SAFRR and Saskatchewan Environment in evaluating the site.

- If the area is not all cultivated land, describe the prevalent vegetation and habitat. Identify the presence or absence of any critical wildlife habitat or unique and natural features of the site.

- Identify sensitive land and water features in close proximity to the barn site or manure application area that could be impacted by the project;

- Describe the existing and adjacent land use;

- Note rare, threatened or unusual species in the vicinity identified by the Conservation Data Centre, Saskatchewan Environment. Regina, (306) 787-7196;

- If it is known that the project site contains a recorded heritage site, describe how these will be managed and protected. Contact Heritage Branch, Regina, (306) 787-5772.

A Substantial Use of any Provincial Resource, Pre-empting Its Use by Others

Water is one provincial resource required by an Intensive Livestock Operation. Saskatchewan Watershed Authority (SWA) regulates water allocation and use. SWA will require detailed information relating to the quantity and source of water to ensure that use of the local water resources is not compromised.

Surface and Groundwater Use

Estimate the annual water demand for the livestock operation and identify any variations based on the production cycle:

- Identify the source of this water, indicating what proportion will be from groundwater and what proportion will be from surface water;

- Identify if the project will be using water supplied by a pipeline;

- Indicate whether SWA approval for groundwater investigation or an Approval to Construct and Operate Groundwater Works has been obtained or applied for; and

- Indicate whether the required SWA Approval to Construct and Operate Surface Water Works has been applied for or obtained.

Emission or Release of Pollutants or Wastes Not Regulated Under Other Legislation

The protection of ground and surface water is the basis of The Intensive Livestock Provisions of the AOA.

Compliance with AOA will demonstrate that the manure and waste by-products resulting from the ILO are regulated, and will be managed in such a manner that pollution will not result. The following

information is required to evaluate the proposal and its waste management practices and to ensure the protection of water:

Common Information
Information common to each component of the waste management plans (Manure Storage, Manure Utilization and Dead Animal Management) can be summarized in site plans.

- Provide site plans that show legal boundaries and proposed construction, indicating existing and proposed contours including earthen manure storage structures.
- Describe the site layout and organization.

Plans should show the proximity of the facilities and management areas to:

- road ditches
- property lines
- surface water bodies
- watercourses
- owned wells
- neighbour's wells

Manure Storage

For an Earthen Manure Storage (EMS):

- Estimate the depth to any usable water table.
- Describe the subsurface soil textures and formations.
- Identify any local groundwater aquifers present in the project management area.
- Compare geological and hydrogeological characteristics of the site to the region, including site-specific information from test holes and basic piezometer results.
- Analyse the site specific information from test holes and any well logs on or adjacent to project site with a view to identifying what risks exist, how those risks can or need to be mitigated and the suitability of *in situ* soils for EMS construction.
- Provide cross sections through the proposed manure storage structures showing test hole information, water levels and proposed constructed grade lines and storage liner(s).
- Outline the water quality monitoring program.
- Provide conclusions about groundwater conditions at the site, including water quality and local groundwater gradients.
- If a shallow aquifer or potential receptor is identified, evaluate the amount of time before seepage is likely to impact the aquifer or receptor, the significance of this event and the relative effectiveness of different options for mitigation. Computer modeling comparing the different options is a valuable tool.
- Describe proposed measures to monitor groundwater conditions, if any.
- In flood prone areas specify the high water elevation relative to the top elevation of the EMS.

For Manure Storage Tanks

- For manure storage tanks, show typical wall construction with inlet and outlet details.
- Verify the structural design by providing plans stamped by a qualified Professional Engineer.
- Provide manufacturer's specifications, including foundation detail, for precast tanks.

Have contingency plans and mitigative measures in place to deal with situations such as:

- early freeze up of land for fertilization;
- manure storage overflow;
- erosion control and repair;
- burrowing animal and vegetation control.

Discuss plans for decommissioning EMS, if the operation is discontinued.

Contact SAFRR's Agricultural Operations Unit for more information about developing a manure storage.

Manure Utilization

Manure must be applied according to an approved waste management plan at rates that supply crop nutrients equal to plant nutrient use. This will maximize the fertilizer value of the manure and minimize the risk of pollution.

The requirement for 400 days of storage will reduce the occurrence of spreading on frozen or snow-covered soil. If application of manure to frozen ground is required, consider the list of factors provided in the SAFRR guidelines and prepare a contingency plan consistent with those criteria.

The following information, as required under the Intensive Livestock Provisions, allows SAFRR to determine if adequate provision is in place to use the manure as a fertilizer without polluting water

General Information on Manure Spreading Areas

- Identify drainage patterns, including seasonal flow conditions for major streams and rivers, indicating flow direction and receptors (lakes and reservoirs)
- Identify sloughs and intermittent drainage ways, especially those near the barn site.
- Determine buffer zones required adjacent to surface water on site and located within manure spreading areas.
- Describe and map soil survey data, noting unusual soil conditions (e.g. salinity)
- Note flowing rivers or lakes where water quality is know to be saline, or seasonally variable.
- In flood prone areas, specify the high water elevation during periods of spring runoff or floods.
- Note any special measures being taken to reduce or eliminate risks to surface water bodies.

Manure Information

Specify:

- Form of Manure (liquid/solid/semi-solid)
- Annual volume or mass of manure
- Adjusted Annual Manure N
- N utilized annually
- N, P and K yields and concentrations

Land Requirement for Manure Utilization

- Calculate the total acres required based on crop rotation, crop yield and soil climatic zone
- Specify:
  - Number of acres used annually
  - Rates and frequency of application
  - How manure will be delivered to and incorporated in fields
  - Areas, such as stream crossings, where special precautions may be required
- Provide written agreements which allow access to land for manure spreading
- Summarize the land areas for spreading in a list.

Dead Animal Management

A summary of options for dealing with mortalities can be found in the SAFRR Guidelines. For any reportable contagious disease, check with the Canadian Food Inspection Agency for the recommended method of disposal.

- Estimate annual death losses in animal units
- Explain the management of mortalities including:
  - Interim storage measures, if any
  - the frequency and method of final disposal
- If final disposal is a burial pit:
  - identify the location of the pit
  - estimate the depth of any usable water table
  - describe the soil characteristics
  - describe how the pit will be managed to prevent water pollution, access by scavengers and the spread of disease
- If the project plans to incinerate mortalities, indicate whether or not an application to operate an incinerator has been made to Saskatchewan Environment
- Explain how veterinary wastes such as sharps, containers and medications are handled.

Odour Management

Management alternatives to control odour are discussed in Establishing and Operating Livestock Operations.

- Briefly describe prevailing climatic conditions, based on available information such as wind rosettes
- Describe management practices and technical approaches to reduce odour
- Note any local bylaws in place
- Note adherence to SAFRR preferred separation distances

For details on preparing a Manure Management plan refer to the SAFRR *Manual for Developing a Manure and Dead Animal Management Plan.*

Widespread public concern because of potential environmental changes

Good communication about proposals is essential. Identify local residents, business operators, community and recreational uses and affected landowners.

SAFRR and Saskatchewan Environment want to ensure that community consultation has taken place. Saskatchewan Environment has the responsibility to determine the significance of environmental change and scope of public concern.

SAFRR requires public notice that an application has been made and requests that the proponent provide the following:

- a copy of the public notice
- the form of any consultations held
- a summary of dates, locations and attendance at public meetings, and any public responses gathered
- a summary of communications with local rural officials and nearby urban municipalities
- approvals (including comments) and conditions from the host municipality
- copies of local media coverage are valuable, but not mandatory.

Involvement of New Technology Related to Resource Use That Would Result in Environmental Change

There is significant effort occurring to develop new technologies, which address the challenges of large-scale livestock production. Some are focused on controlling odour, while others are aimed at treating manure. A summary of some new and emerging technologies are discussed in the SAFRR's publication Establishing and Managing Livestock Operations.

Document any new technologies that will be used in the storage, transportation or application of manure that may impact the environment differently from current practices.

Any Other Significant Environmental Impact, or a Consequential Project, Operation or Activity with Significant Impacts

A specific project may be considered a development if the project causes some other activity to occur which results in a significant impact. Construction of new roads and delivery of utilities to areas where neither roads nor utilities generally exist are common examples. Some activities, such as road construction, will receive environmental screening associated with federal funding.

The providers of utilities (power and gas) usually take responsibility for ensuring the environmental soundness of the services they provide.

As part of the project proposal describe:

- the road access route to the site
- whether an existing access will be used or if a completely new road will be built through a natural or undisturbed area; and who will be constructing the new road
- whether road construction on the site will cause any environmental impact to natural areas, sensitive features or aquatic habitat
- any substantial activities ancillary to the main project which could cause a significant impact
- any processes in place which provide an environmental review of the ancillary projects
- any arrangements the proponent has with service providers to address potential impacts.

Appendix:

Agencies To Contact About Approvals, Licenses And Permits

Saskatchewan Agriculture, Food and Rural Revitalization

The Agricultural Operations Act requires operators of certain intensive livestock operations obtain approved waste storage and waste management plans. An "intensive livestock operation" means the confining of any of the following animals, where the space per animal unit is less than 370 square meters: poultry, hogs, sheep, goats, cattle, horses, elk, mule deer, white-tail deer, fallow deer, bison, or any other prescribed animals.

Contact: Inspection and Regulatory Management Branch – Agricultural Operations Section at (306) 787-4680.
Approval is required for any intensive livestock operation which:

- contains an earthen manure storage area or lagoon;
- involves the rearing, confining or feeding of 300 or more animal units; or
- confines more than 20 animal units but less than 300 animal units for more than 10 days in any 30-day period, within 300 meters of surface water or 30 meters of a domestic water well not controlled by the operator.

Regina	(306) 787-4680	Yorkton	(306) 786-1505 or (306) 786-5835
Saskatoon	(306) 933-5322 or (306) 933-5095	Weyburn	(306) 848-2379

Rural Municipality

Most municipalities require one or more of the following:

- development or discretionary use permits for establishing or expanding livestock operations;
- advertising and approval of zoning changes;
- input to subdivision approvals (if required) and subdivision servicing agreements;
- road maintenance cost agreements for heavy traffic on municipal roads;
- building setback distance from roads;
- if within a Planning District, the recommendation of the Planning District.

Contact local municipal administrator

Saskatchewan Government Relations and Aboriginal Affairs

Municipal Relations Division approval is required if the site is to be subdivided. Contact:

Community Planning Branch

Regina Region	Saskatoon Region	Northern Saskatchewan
(306) 787-2725	(306) 933-6937	Prince Albert - (306) 953-2400

Saskatchewan Culture, Youth and Recreation – Heritage Resources Branch

To determine if any heritage resources are present at or near the proposed site -
Regina - (306) 787-5772

Saskatchewan Watershed Authority (SWA)

SWA may require:

- a groundwater investigation permit for drilling test wells;
- approval to construct and operate wells and use groundwater;
- approval to construct and operate earth works and use of surface water;
- approval to construct in reservoir development areas; and
- approval to alter drainage.

Contact: SWA regional offices:

North Battleford	(306) 446-7450
Nipawin	(306) 862-1750
Yorkton	(306) 786-1494
Weyburn	(306) 848-2345
Swift Current	(306) 778-8263

Saskatchewan Environment

Environmental Assessment Branch
142-3211 Albert Street
REGINA SK S4S 5W6

Phone: (306) 787-6132
Fax: (306) 787-0930

Saskatchewan Highways & Transportation

1855 Victoria Ave.
REGINA SK S4P 3V5
Phone: (306) 787-4800
Fax: (306) 787-9777

Regional Offices

South Region
8th Floor 1855 Victoria Ave.
REGINA SK S4P 3V5
Phone: (306) 787-4969
Fax: (306) 787-4910

Central Region
2174 Airport Drive
SASKATOON SK S7L 6M6
Phone: (306) 933-5186
Fax: (306) 933-5188

North Region
1288 Central Ave.
PRINCE ALBERT SK S6V 4V8
Phone: (306) 953-3500
Fax: (306) 953-3533

Saskatchewan Health

Development of a livestock operation within one mile of an urban center may require approval of the local health authority (health district).
Please contact the Senior Public Health Inspector responsible for the area the proposal is located.

In most cases, information provided to the local health authority through the referral process under the Intensive Livestock Provisions will be sufficient, however early contact with the Senior Public Health Inspector may avoid unexpected delays.

Senior Public Health Inspectors

Swift Current Health District
350 Cheadle Street West
SWIFT CURRENT SK
S9H 4G3
Phone (306) 778-5417

Moose Jaw-Thunder Creek Health District
107 – 110 Ominica Street West
MOOSE JAW SK
S6H 6V2
Phone (306) 694-3680

South Central Health District
110 Souris Avenue, Box 2003
WEYBURN SK
S4H 2Z9
Phone (306) 848-2329

Regina Health District
104 - 4211 Albert Street
REGINA SK
S4S 3R6
Phone (306) 766-7714

East Central Health District
72 Smith Street East
YORKTON SK
S3N 2Y4
Phone (306) 786-0618

Prince Albert Health District
Box 3003
PRINCE ALBERT SK
S6V 6G1
Phone (306) 953-5631

North Central Health District
Box 6500
MELFORT SK
SOE IAO
Phone (306) 752-6321

Battlefords Health District
Room 204, Prov. Bldg. 1146 - 102nd St.
NORTH BATTLEFORD SK
S9A IE9
Phone (306) 446-6418

Midwest Health District
Box 1300
ROSETOWN SK
SOL 2VO
Phone (306) 882-6423

Saskatoon Health District
101 – 310 I Idylwyld Drive North
SASKATOON SK
S7K 2H6
Phone (306) 655-4142

Director of Environmental Health
Northern Health Services Branch
Box 5000
LA RONGE SK
SOJ ILO
Phone (306) 425-4522

Director Disease Prevention and Health Protection Unit
Population Health Branch
Saskatchewan Health
3475 Albert St.
REGINA SK
S4S 6X6

Canadian Food Inspection Agency

300 - 3085 Albert Street
REGINA SK S4P 4E3

Phone (306) 780-5180
Fax (306) 780-5177

Other Agencies

Such as railroads, wildlife organizations, regional parks or resort areas that may be affected by your proposal.

Intensive Livestock Operation Publications

Establishing and Managing
Livestock Operations

Environmental Review Guidelines for Intensive
Livestock Operations

Workbook and Application Form –
For the approval of plans under the Intensive
Livestock Provisions of *The Agricultural*
Operations Act

Intensive Livestock Operation Factsheets

ILO Review and Approval Process

Self-Evaluation for Approval of Plans Under *The*
Agricultural Operations Act\

Selecting an Engineering Consultant for an Intensive Livestock Operation

Manure Management Publications

Manual for Developing a Manure and Dead
Animal Management Plan

Manure Management Factsheets

Impact of Swine Manure Fertilizer on Soil, Water and Human Health
Holding Pond Site Selection and Design
Locating Manure Stockpiles
Managing Manure as a Fertilizer
for Prairie Agriculture
Nutrient Values of Manure

The above publications can be ordered, free-of-charge, from SAFRR Publication Distribution Centre. Or accessed on SAFRR website **www.agr.gov.sk.ca**

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